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FINNISH RAILWAY DEREGULATION: AN ANALYSIS OF THE POSSIBLE OUTCOMES OF OPEN ACCESS COMPETITION IN THE LONG-DISTANCE PASSENGER MARKET

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International Business
Bachelor's Thesis
Supervisor: Russell Warhurst
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ABSTRACT OF
BACHELOR'S THESIS

Author: Henry Mäkinen
Title of thesis: Finnish railway deregulation: An analysis of the possible outcomes of open access competition in the long-distance passenger rail market

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Objectives

The objective of the research is to examine possible outcomes of competition in the open access long-distance passenger rail market and in doing so qualitatively consider the possible impacts of opening the market.

Summary

Firstly, a comprehensive analysis of the Finnish rail market and the current deregulation process is conducted. Primary data is collected through interviews with managers of various organizations operating within the railway sector forming the basis of the analysis while secondary data is used to gain an understanding of events in the deregulation process. The future studies approach introduced the use of the scenario methodology as a way to explore potential future outcomes in the market. Lastly, the domestic topic is tied to an international context through the comparison of the scenarios with market developments in comparable European countries.

Conclusions

The research presents the following three scenarios outlining how competition may play out in the market:

1. No challenger enters the market and VR will continue to operate as the sole provider of passenger rail services.
2. The challenger and VR engage in competition on the rails on select routes between major cities.
3. The challenger competes against VR using some sort of route network.
   A) The challenger operates a hybrid network of train and bus services
   B) The challenger wins the tendering of commuter services in the Helsinki region.

Key words: *barriers to entry, competition outcomes, deregulation, Finland, future studies, market entry, passenger rail market, rail economics*

Language: English

Grade:

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INTRODUCTION

1.1 Research Background

In 2017 the Finnish government announced its intentions to open the passenger rail market to competition (LVM, 2017). Shortly after it was also announced that the agreement between state-owned railway undertaking VR (Valtion Rautatiet Yhtymä OY) and the Ministry of Transport and Communications (LVM) will not be renewed at maturity in 2024 (LVM, 2017). These decisions mark the beginning of a new era in Finnish railway history and the end of VR's long-standing de jure monopoly as the sole provider of passenger rail services. The current expectation is that there will be open access to the long-distance passenger market from 2025 onwards.

Passenger rail traffic in Finland is often divided into two forms; commuter traffic within the Helsinki region and long-distance traffic; which is the focus of this research. The decision to open the passenger rail market to competition applies to all passenger traffic, however the deregulation process for each form will be separate and follow different schedules. For example, commuter traffic in the Helsinki region will be tendered and the bidding process is currently underway with the winning bidder set to begin operations already in 2021 (HSL, 2019). Meanwhile, long-distance passenger services will follow the open access approach (LVM, 2019a).

While the Finnish government believes that deregulation can improve social wellbeing and reduce the burden on taxpayers, legislative pressure has been the primary catalyst for the decision to finally open the passenger market. Beginning in 2001, the European Commission has ratified legislation in the form of four successive railway packages which aim to gradually open national rail markets in EU member countries to competition (European Commission, 2020). In order to comply with EU legislation, a new Rail Transport Act (1302/2018) was signed into effect in 2019 which enforces a level playing field in the rail sector (LVM, 2018). Particularly in recent years the pressure to comply with EC legislation has been building as the final railway package passed in 2016 originally proposed for national EU rail markets to already have been open by December 2019 (European Commission, 2020). At the moment, Finland does not comply with this exhortation due to the existing contract between VR and the

Ministry of Transport and Communications which prevents the market from being opened.

The economic rationale for deregulating industries focuses on the potential efficiency gains that could arise as a result of reducing government control and allowing free market ideologies and competition to flourish. Supporters of deregulation argue that regulated markets exhibit numerous “market rigidities’” that hinder the working of these markets. These unnecessary rigidities contribute to increasing costs and thus, they are considered to lower efficiency. Thus, deregulation has often been the solution to these concerns (Pera, 1989).

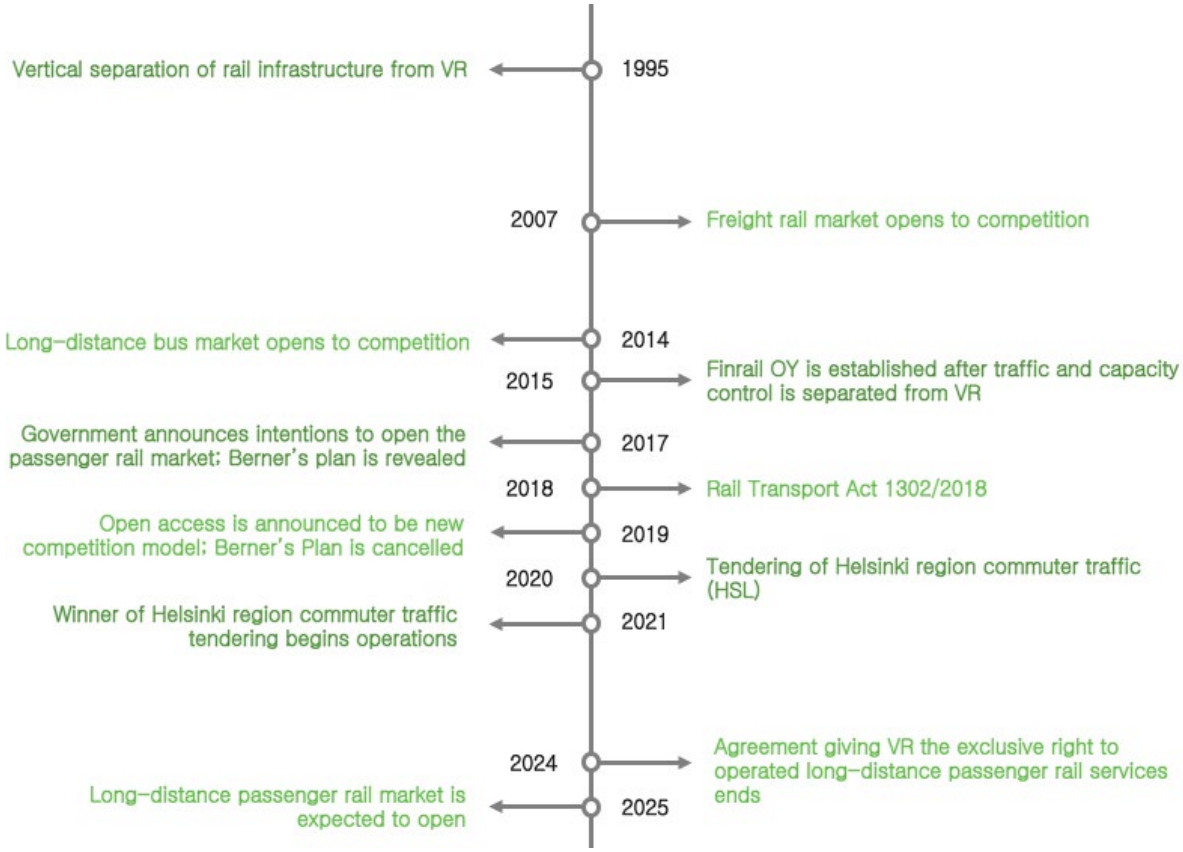

Figure 1. Timeline of Railway Deregulation in Finland. Source: Author

The original deregulation plan was published shortly after the announcement of the government’s intention to open the passenger rail market in 2017. The plan (referred to as Berner’s Railway Deregulation Initiative) was presented by the Minister of

Transport and Communication, Anne Berner and proposed that the market would be restructured while, competition would be introduced to the market in the form of competitive tendering for long-distance routes. The market restructuring meant that VR would be split into three state-owned entities; a rolling stock company, a maintenance company and real-estate company (LVM, 2017). In this arrangement the winner(s) of the tendering process would then purchase maintenance services and lease rolling stock and real-estate from the newly formed state-owned entities (LVM, 2017). This approach aims to overcome the perceived barrier to entry posed by the non-standard rail gauge and thus attempts to increase the attractiveness of the market to competitors.

Unexpectedly, in 2019 the Ministry of Transport and Communications announced that the planning of Berner's Railway Deregulation Initiative was abandoned. Instead, competition to the long-distance passenger rail market would be introduced following the open access model and VR would not be split (LVM, 2019a). Essentially the open access model is the polar opposite of Berner's Railway Deregulation Initiative as each railway undertaking competes using its own rolling stock while being responsible for arranging supporting services including maintenance (LVM, 2019a). Thus, significant investment is required from a new railway undertaking planning to enter the market. Figure 1. shows a timeline of the railway deregulation process in Finland.

1.1.1 The Finnish Passenger Rail Market

Measured by market share, rail is the third most popular mode of transport in Finland. Meanwhile private car accounts for an overwhelmingly large number of journeys. (Figure 2.)

The passenger rail market can be divided into two distinct categories: commuter traffic in the Helsinki region and long-distance traffic. In 2019, about 16.2% of total annual journeys were long-distance revealing that majority of passenger rail travel occurs within the capital region (Finnish Transport Infrastructure Agency, 2019). Traffic flows in the long-distance passenger market can be described as Helsinki-centric. While services are operated throughout the country, long-distance passenger traffic is

heavily concentrated on five major routes: Helsinki – Kouvola, Helsinki – Oulu, Helsinki - Seinäjoki Helsinki - Tampere and Helsinki - Turku. Beyond these routes traffic flows are typically small meaning market-driven demand is minimal (refer to Appendix 2).

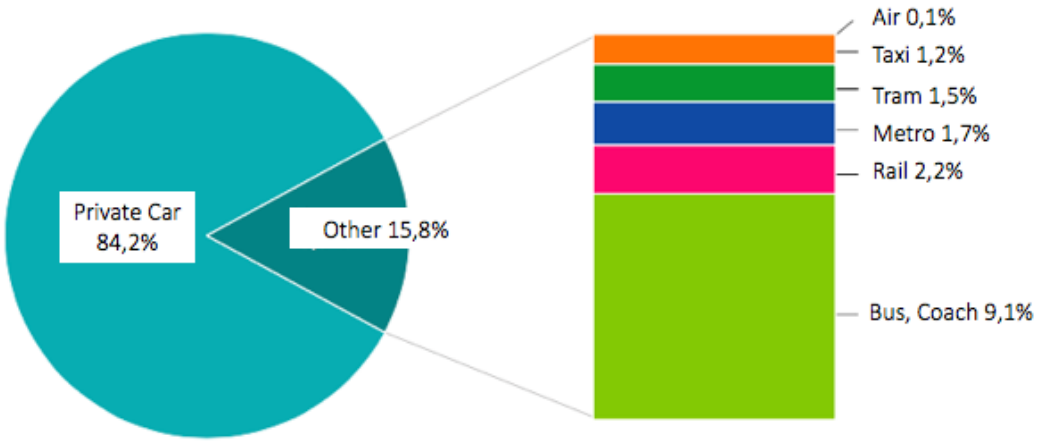

Figure 2. Public Transport Market Share in Finland, 2017 (Traficom, 2017)

Rail services in the long-distance passenger market can be split into three types: market-driven rail service, purchased rail service and publically obligated rail service (PSO) (LVM, 2019b). Market-driven rail services tend to exist on the aforementioned routes connecting major cities. Purchased rail services refer to otherwise lossmaking rail services that the Ministry of Transport and Communications pays VR to operate. Publically obligated rail services refer to unprofitable rail services that guarantee social mobility in rural areas. VR must operate these services as a part of its arrangement with the Ministry of Transport and Communications in exchange for its monopoly position (LVM, 2019b). The annual revenue of total passenger rail traffic was 441.2 million EUR in 2019 (VR Group, 2019a). In the same year, purchased rail services brought an additional revenue stream of 30 million EUR while, public service obligations cost the company roughly 21 million EUR (LVM, 2019b and Valtioneuvosto, 2019).

Figure 3. show the total number of annual long-distance passenger rail journeys during the past 30 years. A general period of stable increase can be observed from 1990 to the early 2010s, followed by a drastic decrease over the course of the next 5 years.

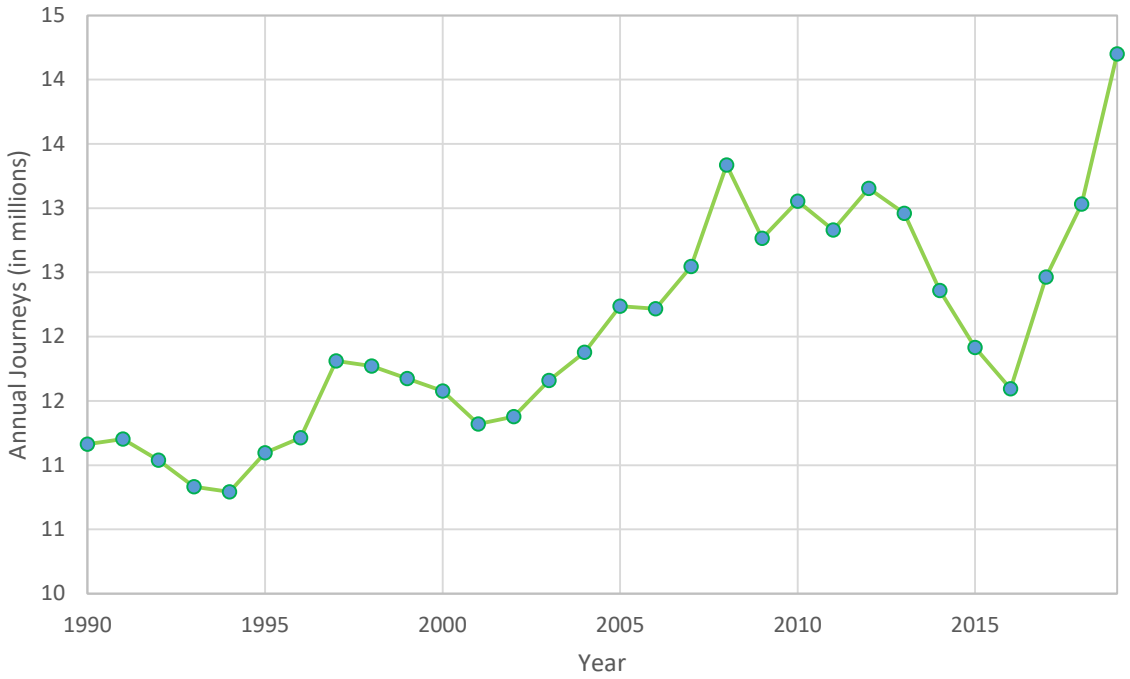

Figure 3. Total Annual Long-Distance Rail Journeys, 1990-2019
(Finnish Transport Infrastructure Agency, 2020)

This decrease can be attributed to VR's floundering public image due to high ticket prices and poor punctuality which resulted in people avoiding rail travel. Moreover, began to VR face intense competition from long-distance bus company Onnibus.com which effectively implemented a low pricing strategy. However, the explosive growth in the number of annual long-distance passenger rail journeys during the past five years has reversed the declining trend. During this time the number of passenger journeys has increased by nearly 25% (VR Group, 2020). Growth in the market has been driven by the increasing demand for sustainable transport among the the Finnish population and substantial reductions in ticket prices.

1.1.2 Railway Deregulation in Europe

The deregulation of railways has been common in Europe as most countries have gradually opened their national markets to competition. A more in-depth discussion outlining the need to pursue various degrees of deregulation in the rail sector is provided in the literature review. In summary, public financial support for rail sectors throughout Europe began to increase as railways lost market share to other means of transport in the 1970s. In addition, state-owned monopolies, often characterized by

poor performance and inefficiency, were responsible for the rail sector in most countries (Jensen, 1998). Thus, deregulating the rail sector was seen as a way to revitalize railways in Europe (Walters, 2007).

Sweden was the first European country to begin the process of deregulating its rail sector in 1988, followed by Britain in 1993. (Alexanderson and Hulten 2008, Lundberg, 1996 and Preston 2017)). Since then, nearly all European countries have followed suit. The deregulation process in most European countries has followed a similar pattern consisting of three phases. The first phase involves the vertical separation of railway operations and infrastructure. Next, the second phase involves the opening of the freight rail market to competition. Finally, the third phase involves the opening of the passenger rail market to competition. Finland has also followed this process; vertical separation occurred in 1995 and the freight market was opened to competition in 2007 (Hilmola and Leino, 2006 and Mäkitalo, 2011). However, Finland remains one of the last European countries yet to open its passenger market to competition.

The rail sector is surprisingly efficient despite VR's de jure monopoly on passenger services and this partially explains why policy-makers have been in no hurry to open the passenger rail market. Interestingly, the efficiency and overall performance of the rail sector in Finland is currently among the highest in Europe. For example, Finland is ranked 3rd in BGC's European Railway Performance Index 2017, ahead of countries such as Germany, Britain, and Sweden (refer to Figure 4.) (Duranton et al. 2017).

Similarly, the European Commission ranks rail efficiency in Finland as 8th best in the world ahead of Germany (9th), Britain (22nd) and Sweden (30th) (European Commission, 2019). However, these rankings should be interpreted cautiously since there are inconsistencies in the underlying data and parameters which makes comparison between countries difficult and often unreliable. Nevertheless, the rankings provide some indication that improving the efficiency of the Finnish rail sector is perhaps not the driving force behind the decision to open the passenger market. Instead the stated aim of deregulation is to grow the market share of rail in order to improve economic and social welfare (LVM, 2017).

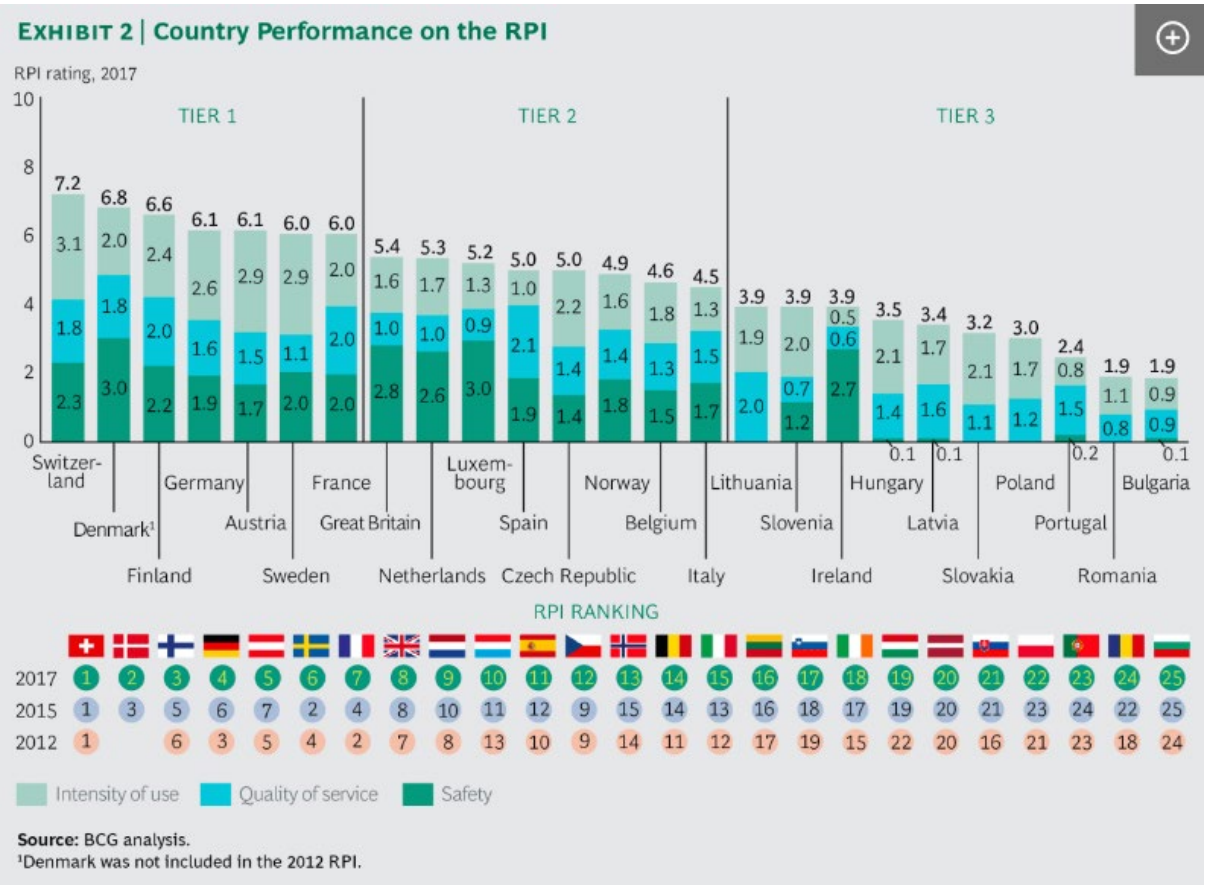

Figure 4. European Railway Performance Index 2017 (Duranton et al, 2017)

The government believes that competition in the market will lower prices and improve service levels. This in turn increases the competitiveness of rail travel in relation to substitute means of transport. In particular, a widespread shift away from the use of private car would help Finland's achieve it emissions targets. In addition, economic benefits would arise from a decrease in unemployment due to strengthened labor mobility throughout the country.

1.2 Research Problem

VR's monopoly position has seldom been under threat despite decades of speculation regarding the possibility of opening the market. Recently, however, as a consequence of legislation passed by the European Commission the outcome of an open long-distance passenger rail market in Finland has become inevitable. Various challenging characteristics make research regarding these upcoming changes particularly

intriguing. In Finland, both the population and the market share of the long-distance passenger rail market is small. Additionally, the rail system features a non-standard gauge, meaning dedicated rolling stock compatible with the infrastructure is required. Hence, the problem of the high barrier to entry must be solved in order for the rail market to attract and develop competition.

The impact of the competition that may result once these issues are addressed presents another point of interest. Finland is one of the last European countries to begin the process of opening its passenger rail market to competition. While the deregulation of railway markets is hardly a new phenomenon, numerous precedent cases throughout Europe reveal uncertainty over the magnitude of the resulting beneficial impacts. As a result, Finland should advance reform in its long-distance passenger rail market cautiously and simultaneously uphold a critical view of the process.

Two problems highlight why researching this topic is important. Firstly, there is of course no prior experience with an open passenger rail market in Finland that could be investigated. This means there is valuable knowledge to be gained by using information that is known today to consider what scenarios could possibly occur in the market with regards to competition. Secondly, prior publicly available research into the process and impact of opening the Finnish passenger rail market is relatively limited. One reason for this is that the relevancy of the issue has, for decades, been diminished by longstanding contracts between VR and the government which allows VR to remain the exclusive provider of passenger rail services. Even up until the past year, information asymmetry combined with the changing situation has made it difficult to conduct realistic analysis as an “outsider”. For example, the sudden ministry announcement to proceed with the open access competition model in late June of 2019 means that most prior research is at least partially outdated. Consequently, little research and analysis has been conducted which reflects the most recent available information regarding the current direction of the deregulation process.

1.3 Research Questions and Objectives

The purpose of my research is to evaluate both the process and impact of opening long-distance passenger rail services to competition in Finland. Exploration of the process gives insight into how changes caused by deregulation will be (or have been) implemented. Furthermore, market conditions, structure and barriers to entry factor into the choice of the competition model. Ultimately, these variables directly affect the ability of the passenger rail market to attract competition and the subsequent changes resulting from presence of new railway undertakings.

The following research questions helped guide my research.

1. What is the best way to introduce competition to the Finnish long-distance passenger railway market?
2. What are the barriers to entry and does the existing rail market offer a level playing field for new entrants?
3. What is the impact of various scenarios of competition?
4. Is the proposed open access model of deregulation likely to be effective?
5. What potential shortcomings in the actions and/or proposals of decision makers can the research process reveal?

The objective of the research is to provide answers to these questions by combining the opinions of industry experts with existing public information to create meaningful analysis regarding both the current and future state of the long-distance passenger rail market in Finland. Furthermore, the lack of empirical experience can be partially overcome by drawing well-reasoned parallels to the impacts of deregulation observed in the rail markets of other European countries. Ultimately, the research aims to present various competition scenarios, which attempt to describe what the market will look like following the introduction of competition and how it will affect various stakeholders.

A secondary objective of the research is to offer a critical and reflective perspective on the deregulation process from the perspective of an “outsider”. For example, the research process may reveal shortcomings in the actions and/or proposals of decision-makers. By highlighting these potential issues prior to their implementation, decision-

makers are able to make alterations which avoid or minimize any adverse consequences. Moreover, analyzing possible impacts of change allows for a better understanding of the expected outcomes and in doing so contributes to the general thought surrounding the topic.

1.4 Definitions

Barrier to Entry – A barrier to entry is considered anything that prevents or deters competition from occurring in the market

Challenger – A railway undertaking that enters the market and competes against the incumbent.

Competitive tendering – A competition model where railway undertakings bid for the right to operate passenger services solely on predetermined routes.

Deregulation – The removal or relaxation of government regulation over activities in a particular industry with the aim of increasing competition.

Incumbent – Typically a state-owned railway undertaking that is strongly positioned in the market due to its former monopoly position.

Infrastructure Manager - The organization or agency responsible for managing and maintaining all aspects of railway infrastructure

Monopoly – Refers to a situation where a firm is the sole provider of products/service in a particular market. A de jure monopoly and natural monopoly are two types of monopoly.
De jure Monopoly - Refers to a situation where a firm is legally allowed to operate as a monopoly by the government

Natural Monopoly – Refers to a situation where a firm operates a monopoly simply because factors such as barriers to entry prevents other entrants from entering the market

Open Access – A competition model, where railway undertakings are free to operate passenger services anywhere along the rail network.

Railway undertaking - A licensed public or private transport operator which provides services for the transport of goods and/or passengers by rail.

Rolling Stock - Locomotives, passenger carriages, wagons, or other vehicles used on a railway

1. LITERATURE REVIEW

The purpose of this literature review is to gain a theoretical understanding of the central ideas, debates and trends in rail economics while simultaneously offering points of comparison between the deregulation process of passenger rail services in Finland and other European countries. In doing so, the literature review benefits my research because it anchors my analysis in some practical realm of precedent.

The literature examined in this literature review is limited to studies which focus on investigating railway deregulation in the European context. Although rail deregulation has been a global phenomenon with numerous interesting international cases, the specific characteristics of the rail systems and markets in the countries that have been researched typically differ from those found in Europe and hence the applicability of the lessons learned suffers. For example, there is very little passenger traffic in the United States as the rail market consists predominantly of freight transport operations. In addition, the rail system is distributed over an enormous geographic area. Meanwhile, in Japan rail travel is strongly engrained into the way of life which is reflected in the high market share of rail travel in overall passenger traffic.

I feel this decision is justified because the empirical research, data and analysis drawn from other European countries has a greater relevance for my own research regarding railway deregulation in Finland. Also, there may exist additional points of convergence due to the overarching legislative conditions posed by the European Commission's railway packages which guide deregulation in European countries. Hence, relevant aspects of this information can be cautiously applied to the Finnish case with greater reliability. Due to the speculative and future-oriented nature of research it is imperative to draw upon relevant examples in order to ensure that the analysis and subsequent conclusions are plausible.

Another important aspect which has guided the choice of literature stems from the observation that rail sectors in European countries are undergoing deregulatory reform at different speeds and stages. Consequently, it is crucial to include research from a considerable time span to better understand the development and impact of these reforms. In order to recognize possible changing trends in academic thought, the

selection of literature includes research and analysis from the beginning of deregulatory rail reform in the early 90s to the present day.

2.1 Why Deregulate the Rail Sector?

The general consensus among researchers and policymakers, particularly in Europe is that the deregulation of network industries is desirable because it lessens the role of the state in running these industries. Network industries, which typically describe industries such as railways and utilities are defined by Bernstein (2007) as industries which “require the utilization of a network or infrastructure capital to deliver their services”. This belief has its foundation in classical economic theory, which generally predicts that introducing competition into a sector previously run as a state-owned monopoly will result in lower costs and better service quality and thus improved overall efficiency (Baulol et al. 1982). The underlying assumption is that due to the absence of competition, the state-owned monopolist lacks the incentive to improve its operations and efficiency. The influence of this thinking is also reflected by the current legislative and economic environment within the European Union with the European Commission imposing deregulation of the railway sector through formal legislation onto member countries.

2.1.1 Poor Performance of State-Owned Monopolies

There have been two primary reasons for why countries in Europe have been under pressure to pursue deregulation of their railways over the past 30 years to varying degrees. Firstly, a shared trend during the 1970s and 1980s in nearly all European countries was a decline of the rail sector’s competitiveness. The rail market was losing market share to substitute means of travel and government subsidies were increasing (Jensen, 1998). There concerns were reflected in the objectives of rail deregulation of pioneering countries. For example, in Sweden these objectives included improving “efficiency, customer orientation and profitability”. (Alexandersson and Hulten, 2008 and Lundberg, 1996).

A shared characteristic throughout Europe during this time was that both railway infrastructure and operations were under the ownership of state-owned monopolies. Since these firms were protected from competition by the government, they were

widely deemed inefficient and the reason for the declining performance of the sector (Jensen, 1998). However, despite poor performance, operations in the rail sector were and still are regarded as vital to the socioeconomic interests of a country meaning there is an incentive to maintain and revitalize them (Walters, 2007).

2.1.2 Political and Legislative Pressure

The second reason for pursuing deregulation has been pressure from the European Union's European Commission to increase competition and encourage eventual open markets in transport industries throughout Europe by imposing legislative packages (Alexandersson and Hulten, 2008). The initial legislation to pursue this in the railway sector was passed in 2001 with the European Commission's 1st railway package. Subsequently the European Commission has released 3 additional legislative packages over the span of 15 years with the 4th and final package requiring that every EU country should have an open and equal passenger and freight market that can be entered by any interested company during the 2020s. (European Commission, 2013).

2.2 Deregulation and Restructuring the Rail Sector

The rail systems in European countries had to be restructured in conjunction with deregulation. Seabright et al. (2003) outline two essential aspects of this restructuring; vertical integration and horizontal disintegration. The concept of vertical integration is concerned with the distinction between ownership and the managing of railway infrastructure and operations. Railway infrastructure refers to the fixed physical aspects of the railway system such as the tracks (in some cases it may also include stations and maintenance buildings) while operations refer to actions occurring in the railway system such as passenger or freight services (Cantos et al, 2001).

2.2.1 Vertical Dimension

According to Seabright et al. (2003) there are three degrees of vertical integration which are defined by the degree of division in the ownership between infrastructure and operations (refer to Figure 5). Vertical integration refers to an arrangement where a single entity is responsible for managing both the infrastructure and operations in the rail system. The opposite of this structure is vertical separation where ownership

and responsibly for managing rail infrastructure is assigned to an entity known as an infrastructure manger while the responsibility of operating passenger and freight services lies with independent railway undertakings. A government agency has often adopted the role of the infrastructure manager in a vertically separated railway system. In Britain, railway infrastructure was initially privatized following vertical separation, but has since been renationalized following the failure of Railtrack (Lundberg, 1996, Hilmola and Szekely, 2006 and Preston, 2018).

The third form is partial disintegration. In this structure, ownership and responsibility for the management of the rail infrastructure remains with the primary operator of the rails (referred to as the incumbent). Other railway undertakings (referred to as challengers) are then granted the right to operate passenger or freight services using the incumbent's infrastructure (Seabright et al. 2003). Germany is an example of a partially disintegrated railway system where state-owned transport company DB (Deutsche Bahn) acts as both the infrastructure manager and the primary rail service operator (Nash et al. 2013).

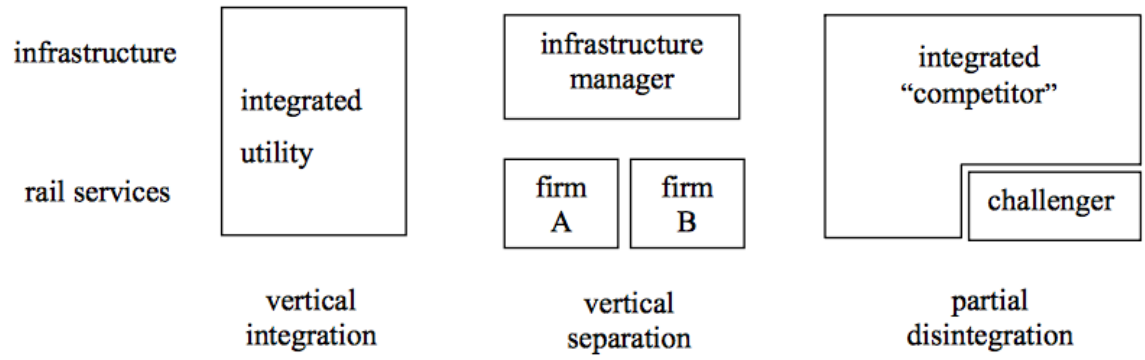

Figure 5. Railway structures (Seabright et al, 2003)

Vertically integrated railways were the predominant structure throughout Europe until the mid 1990s. There onwards most European countries began the process of vertically separating their railways following the lead of Sweden and Britain who restructured already in 1988 and 1993 respectively (Alexanderson and Hulten 2008, Lundberg, 1996 and Preston, 2018). Railway operations and infrastructure in Finland were separated in 1995 with Väylävirasto (Finnish Transport Infrastructure Agency),

an agency acting under the supervision of the Ministry of Transport and Communications becoming the infrastructure manager (Hilmola and Leino, 2006). The debate among researchers regarding the success of the vertical restructuring of railways in Europe will be discussed in later sections.

2.2.2 Horizontal Dimension

The horizontal integration of services that support railway operations is another crucial aspect that must be considered during the deregulation process. Nilsson et al (2013) and Seabright et al. (2003) both consider access to maintenance, depots and rolling stock leases as important examples of supporting services which enable fair competition to occur in the market. Before deregulatory reform, these supporting services were commonly owned by the state-owned rail operator, but have since been separated from the incumbent's operations in countries such as Sweden and Britain. For example, rail franchises in Britain typically lease their rolling stock from dedicated rolling stock leasing companies instead of purchasing rolling stock themselves. (Nilsson et al, 2013).

Literature in railway economics tends to focus on vertical separation and research on horizontal disintegration is widely lacking. This is perhaps surprising because a study conducted by Mizutani and Uranishi (2012) finds that horizontal disintegration generally reduced railway costs more than vertical separation. Interestingly, this apparent gap in research converges with a crucial aspect of my research regarding the introduction of competition to the Finnish railway market. This is because the non-standard rail gauge is often considered a significant barrier to entry and thus a detriment to competition. As a result, horizontal disintegration potentially leading to the formation of a rolling stock leasing company is a relevant solution to consider.

2.3 What are the ways of Introducing Competition to the Market?

2.3.1 Competitive Tendering and Franchising

European countries have experimented with several ways of introducing competition to their rail markets. Seabright et al. (2003), Stead et al. (2019) and Nash et al. (2013) present two primary models; open access (competition on the rails) and competitive

tendering (competition for the rails) which, also includes the franchising model used in Britain. In the competitive tendering process firms bid for the exclusive right to operate certain routes in a country's rail network for a specific period of time (Nash et al, 2013). Typically, the winner is the bidder who can convince the government that it is able to operate a safe and high quality service while receiving the lowest subsidy (Nash et al, 2013). A variation of the competitive tendering model known as franchising has been widely used as a method of introducing competition in the British rail sector. In Britain, the rail network has been divided into regional franchises and companies tender for the right to operate them. In order to minimize set up costs, the assets of the franchise such as labor carry over whenever there is a change of franchise ownership (Nilsson et al, 2013). Competitive tending has been the preferred approach to introducing competition to railway markets throughout Europe (Seabright et al, 2003).

2.3.2 Open Access

Open access is a form of competition where the market is completely open for any railway undertaking to begin operations. Examples of open access passenger rail markets include Germany and some regions of Sweden. The primary benefit of open access markets is that the competition between companies is truly market driven. As a result of facing direct competition, Seabright et al. (2003) believe that railway undertakings in the open access model are under greater pressure to perform compared to the franchising model. The reason for this is because the threat of losing the franchise during the next tendering round exists only in the future. Another advantage of the open access model is that it allows operators to develop and operate route networks that are not constrained to specific geographic areas as in the franchising model. This has beneficial for the customer and the railway undertaking since optimization of service schedules to maximize connections is possible (Seabright et al, 2003).

The challenges of the open access model include ensuring that the market is attractive and non-discriminatory to new railway undertakings. This is particularly relevant when the market features a strongly positioned state-owned operator and high barriers to entry. A situation like this can hinder competition from materializing due to the high initial investment in rolling stock that new railway undertakings have to make to enter

the market (Seabright et al. 2003 and Calluso, 2016). Stead et al. (2019) state that the quality of service provided by new railway undertakings in open access markets is often low. For example, open access operators often use older and slower rolling stock resulting in longer travel times. Stead et al. (2019) conducted a comparison between franchised and open access train operators in Britain and find that open access operators suffer from greater rates of cancellations and poor punctuality. The combined effect of companies offering lower quality services can result in a reduction of the efficiency and scarce track capacity of the rail network.

Seabright et al. (2003) comment that competition on the rails has been a rare phenomenon in Europe with the exception of Germany where the open access model has led to competition. Competition on the rails between state-owned SJ and Hong Kong based railway undertaking MTR has also recently materialized in Sweden on open access routes (Vigren, 2017). Ultimately the direction of railway development in the Europe Union appears to be heading towards there being some form of open access to all national rail markets. (European Commission, 2013).

2.4 Comparison of Competition Models

Nash et al. (2013) conducted a comparison of the deregulation models used by Sweden, Britain and Germany and predict that in theory the British franchising approach should be the most successful. However, they find that subsidies and public financial support for the railway sector has decreased in Germany (open access market) whereas in Sweden and especially Britain subsidies have increased significantly. They also state that there is greater competition in Germany and Britain compared to Sweden, however the sizes of the markets have to be taken into consideration. As mentioned previously by Vigren (2017), there has been open access to Swedish long-distance passenger market since 2010 and thus it would be interesting to conduct research on if the level of public financial support for the Swedish rail sector has reduced similar to Germany. Nash et al. (2013) also find that the rail sectors in Sweden and Britain have experienced impressive growth in passenger numbers despite a general increase in ticket prices, while in Germany growth has been stagnant.

Researchers consider the Swedish deregulation approach to be a success (Alexandersson and Hulten, 2008, Lundberg, 1996 and Nilsson et al. 2013) while the British approach has garnered greater scrutiny (Preston, 2018). Despite this, an important observation is that the literature is cautious of championing a single deregulation approach as being the best and rightly so. Instead, it is repeated that there are benefits and challenges associated with all approaches and success is largely dependent on how well the reform is able to match the specific characteristics of that particular country's rail system (Thompson, 2003). However, some researchers advocate that attempts to mitigate several external factors associated with deregulation can explain why the outcomes observed in one country may be more successful than in another. For example, Lundberg (1996) considers the lack of superfluous political interference in the restructuring of former state-owned monopoly SJ as one of the reasons for why deregulation was successful in Sweden. In contrast, the rail privatization process in Britain was tightly intertwined with political objectives. Similarly, Friebel et al. (2010) and Cantos et al. (2011) argue that success is related to the length of the time frame in which reforms are implemented. For example, gradual reform in Sweden during a period of over 30 years versus shock reform in Britain where the privatization process was completed in 3 years. This insight regarding the speed of implementing reform provides another aspect to be considered in Finland since time is slowly running out to restructure the railway market to comply with European Commission legislation by 2024.

2.5 Central Debates in Rail Economics: Examining the Impact of Deregulation

2.5.1 Evaluation of Britain Deregulation

The success of British deregulation and the franchising approach has been a controversial topic of debate since the mid 1990s. Particularly in recent years many researchers have engaged in critical reevaluation over how the deregulation process was conducted and its subsequent impacts. Hilmola and Szekely's (2006) analysis of British rail deregulation initially describes the process as a "great failure" citing numerous accidents and rising costs which resulted in an increase in public subsidies given to the sector. However, despite these negative impacts, they note that the industry has seen both growth and a drastic improvement in safety. To the same effect, Pollitt and Smith (2002) claim that railway deregulation in Britain has resulted in net

benefits using a social cost-benefit analysis, noting that the increased subsidies have been mitigated by traffic growth and improved operating efficiencies. More recently, Lyons et al. (2014) surveyed British passengers and find that the number of rail journeys has increased by nearly 50% since the time of reform implying that the objective of increasing passenger numbers has been achieved.

While Pollitt and Smith (2002) and Hilmola and Szekely (2006) defend the decision to franchise rail services, recent studies are more skeptical of the approach. Preston (2018) finds that franchising has been "modestly welfare enhancing" even thought transaction costs continue to rise. Preston highlights concerns with the vertical separation of operations causing a rise in the costs of rail franchises and discusses proposed government plans for experimenting with reintegration. Evidence for this comes from numerous franchises, which have struggled to perform in recent years. For example, the Northern Rail franchise, the largest franchise network in Britain formerly operated by Arriva, is set to be renationalized following an announcement in January 2020.

Examination of the British railway experience, reveals that aspects such as the rolling stock leasing company approach may be relevant to consider for Finland. In theory, the establishment of a company that leases existing rolling stock to new railway undertakings appears to be a solution lower barrier to entry. On the other hand, the franchising model appears to be unsuitable for Finland as passenger traffic flows are very Helsinki-centric. This means that establishing franchises in different parts of Finland would not be desirable or profitable for railway undertakings. Moreover, the establishment of franchises that operate exclusive networks in different parts of the country only benefit from competition at the tendering stage and then go on to essentially operate as a local monopoly. Granted, one way to prevent this would be to award railway undertakings with short-term contracts (around 5 years) and ensure competitive pressure on the company to perform in order to prevent losing the franchise during the subsequent tendering round. However, short-term franchise contracts may not entirely solve this problem in small rail markets such as Finland where there is limited interest to bid for franchises. Also, potential entrants to the market may be deterred by short-term contracts as they would prefer to bid for long-

term contracts to ensure stability and the ability to recoup their investment over a longer period.

2.5.2 Vertical Separation: Increased Costs Outweighed by Competition?

A central debate in railway economics is whether vertical separation leads to an overall improvement in cost efficiency. As it stands, evidence presented by researchers indicates that vertical separation leads to an increase in costs. Compared to the vertically integrated model, transaction costs can increase due to a misalignment between interdependent activities (Andersson and Hulten, 2015). Andersson and Hulten define transaction costs as “the costs of using the market as opposed to organizing transactions inside of an organization”. In other words, greater costs are incurred by interdependent participants in the railway sector due to each participant incentivizing its own profit maximization during the provision of their services. Andersson and Hulten (2015) consider the market for rolling stock in Britain to be an example of this behavior. They refer to research conducted by Yvrande-Billon and Menard (2005) which finds that rolling stock companies lacked the incentive to provide specialized train sets to railway operators due to the short length of the tendering contracts.

Approaching the debate from the perspective of the vertical integration model, Growitsch and Wetzel (2009) conclude that vertically integrated railways benefit from economies of scope and thus are more efficient. To the same effect, Laabsch and Sanner (2012) argue that the vertical integration model “generates cost advantages arising from synergies and lower transaction costs between the operation of infrastructure and transport”.

While vertical separation increases costs, some researchers argue that the overall efficiency of the railway system still increases as a result of greater competition. The efficiency outcome of the vertical separation and integration model are shown in Figure 6. with reference to the relationship between costs and competition.

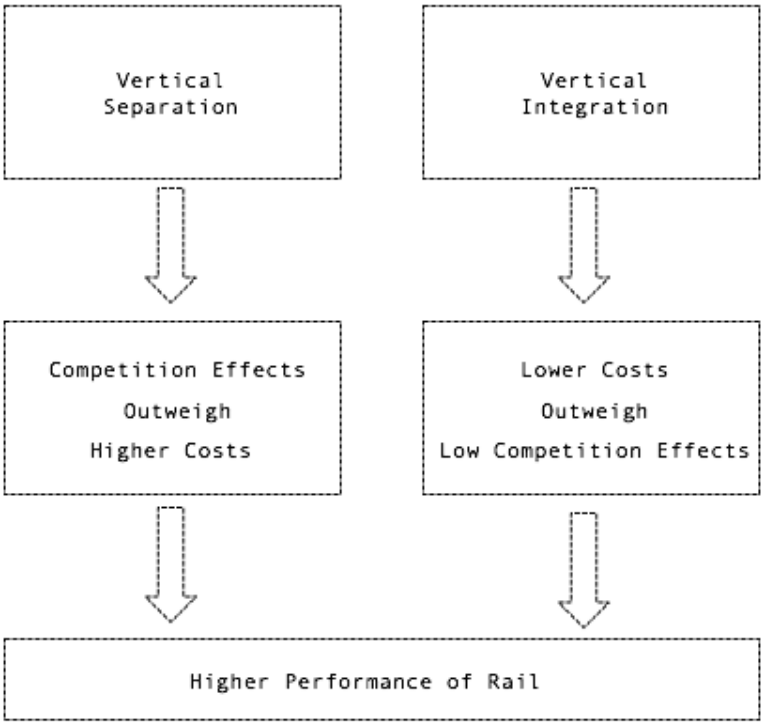

Figure 6. Vertical Separation and Integration Efficiency outcomes
(Modified from Laabsch and Sanner, 2012)

Jensen and Stelling (2006) conducted a longitudinal study of data from Sweden and find that vertical separation increased costs, while the subsequent competition lowered costs. They conclude that overall cost efficiency has improved in the Sweden. Merkert et al. (2012) expand the analysis to include Sweden, Britain and Germany. Their findings are in agreement with those of Stelling and Jensen, albeit they are more percise. They find that full vertical separation (in Britain and Sweden) has increased costs by 2 to 3%, but argue that even modest competition in the railway sector is enough to result in a net increase in cost efficiency.

Meanwhile Mizutani and Uranishi (2012) adopt a different approach and investigate the impact of train density in vertically separated rail system on costs. They find that in systems with low train densities, costs decreased because of vertical separation while costs increase in high train density systems. This result may have implications for Finland given the low train density. In a later study, Mizutani et al. (2014) affirm their earlier finding that train density is a crucial factor to the cost impact of vertically separated railway structures. They also used econometric modeling to compare the

costs of vertical separation, vertical integration and partial disintegration and conclude that in isolation, the increase in cost is practically the same regardless of structure. Jensen and Stelling (2006) and Merkert et al. (2012) and to a lesser extent Mizutani and Uranishi (2012) and Mizutani et al. (2014) all take the stance that the cost increase associated with vertical separation is outweighed by the competition that results in the market. Opposingly, Gallardo and Izquierdo (2018) argue that a rail system can also achieve efficiency gains without vertical separation given that there is open access to the passenger market such as in Germany.

2.5.3 Savior of Railways: Technological Change or Deregulatory Reform?

When evaluating the impact of deregulation, it is appropriate to consider what proportion of the gains in efficiency and improvement in service quality can be attributed to technological change rather than reform. For example, Lundberg (1996) and Lyon et al. (2016) discuss how the introduction of high-speed trains and track segments have drastically reduced travel times and in doing have increased the competitiveness of rail travel compared to substitutes. Moreover, Cowie (2018) investigated increases in productivity in the British rail sector during the period of 1997 to 2015 and argues that “virtually all of the gains have come about as result of technical change”. In addition, the optimization of operations in the rail system to better accommodate commuter and freight trains, which operate at lower speeds, has increased overall track capacity. This is possible due to technological developments regarding how crucial information such as the status and speeds of other trains operating on the same rail line is communicated to train drivers. For example, this information can be displayed directly to the driver on instrumentation panels found inside the cabin of the train rather than on fixed signals along the track (Transportation Research Board, 2006).

2.5.4 Is Competition Really Fair?

While there is debate over the impacts of certain aspects, the general belief held by most researchers is that competition enabled by deregulation has led to an overall increase in efficiency. In light of this, the finding presented by Calluso (2017) is rather surprising. Calluso studied the efficiency impacts of open access competition and

using a difference-in-difference estimator, found that competition on the rails has not led to major efficiency improvements. The primary reason for this is the failure to ensure non-discriminatory access in these markets. Take for example the case of Germany where DB is both the incumbent and the infrastructure manager, and thus may have an incentive to act in a manner that primarily serves its own interests. When fair competition is hindered, Calluso argues that costs in open access rail markets are higher than in a monopoly. However, a limitation of Calluso's study is that the data and results are collected from a short time frame while the effects of reform are only truly revealed in the long-term. Nevertheless, this is an important insight because it highlights the crucial role that regulators have in ensuing fair competition in the railway sector and failing to do so can prevent a deregulated rail system from maximizing its efficiency.

2.6 Conceptual Framework

The examination of the literature has revealed that there appears to be consensus among researchers that deregulation has improved both the overall efficiency and competitiveness of the rail sector. However, there remains debate over how the rail sector should be structured to ensure these benefits are maximized. Case studies from European countries reveal that the choice of deregulatory reform is generally guided by the characteristics of the national rail system, government objectives and overarching European legislation.

The conceptual framework synthesizes important concepts from the literature review with the research objectives to guide the research process (refer to Figure 7). More specifically, the framework will be used to identify important themes to consider during the data collection and analysis phases. The progression of the deregulation process is visualized by the dotted arrow which cuts through to the center. The elliptical regions represent important concepts which must be considered during the process because the decisions surrounding these concepts influences the outcome of competition. Elliptical regions have been composed so that the interrelated, but overarching influence is conveyed in the relationships between concepts.

The railway operating environment which consists of all railway related activities in a country has been highlighted in red. Using the railway operating environment as a reference point, the conceptual framework distinguishes between external and internal forces which impact competition outcomes.

Moving outwards, the conceptual framework includes the important concept of a level playing field that is discussed in the literature review. In order to ensure this, legislation deriving from EU or national law should be imposed onto the railway operating environment by an impartial external organization. If this in not enforced, powerful organizations in the railway sector will act according to their own interests and competition will suffer as a result. The outermost ring represents possible barriers to entry to the market. For example, if there exists a barrier such as a closed rail market, then competition will not occur irrespective of conditions in the operating environment. Thus, barriers to entry are critical to evaluate when examining railway deregulation.

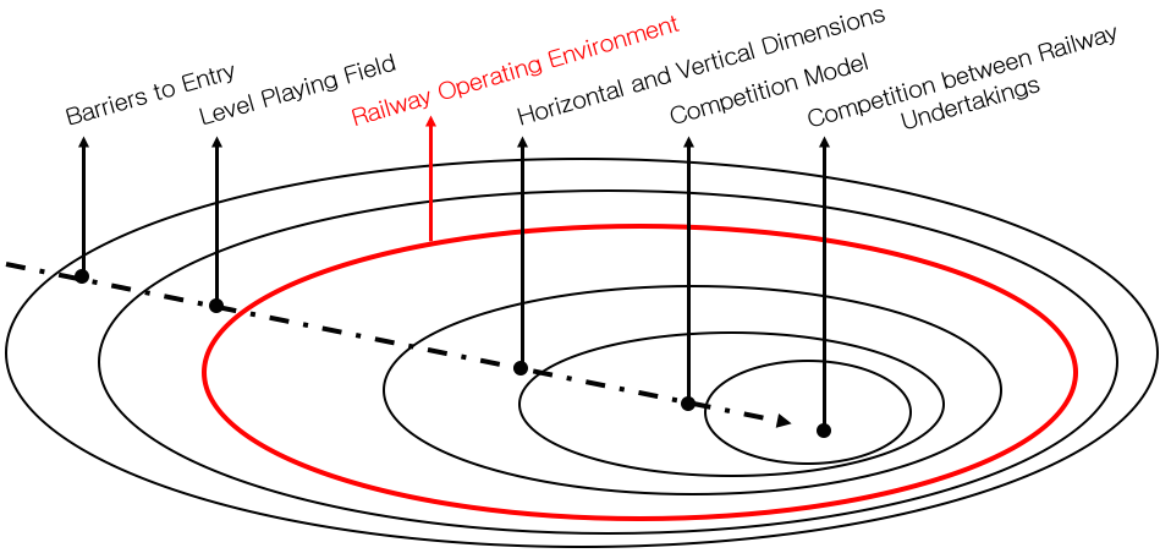

Figure 7. Conceptual Framework

Moving inwards, the structure of the railway operating environment is captured by the horizontal and vertical dimensions. Ultimately, these factors influence the choice of commotion model which considers how to introduce competition to the market. Finally, the competition model directly determines the type of competition that occurs between railway undertakings; for example, competition on the rails or competition for the rails.

2. METHODOLOGY

5.1 Research Approach

This research incorporates aspects of the future studies approach to attempt to describe possible future outcomes related to competition in an open access long-distance passenger rail market. Future studies aims to study possible, probable and preferable futures with the intention of assisting individuals in choosing and creating the most desirable future (Bell, 1996). In other words, the objective is to explore how decisions that have been taken or will be taken may impact the future. This process is important because it encourages critical inspection of proposed actions and often highlights potential problems that may arise (Bell, 1996). Subsequently, decision-makers can cancel or amend their plans while having an increased awareness to minimize any expected negative impacts.

The uncertainty involved during the study and analysis of the future makes it challenging for researchers to provide accurate and reliable forecasts (Miller, 2006). However, an important aspect of future studies is that the researcher accepts and embraces the existence of this uncertainty and acknowledges that forecasts will always be incomplete. Moreover, the future studies approach is focused on providing simulations of possible futures rather than simply predicting the future (Mietzner and Reger, 2005 and Miller, 2006). This sentiment is voiced by Herman Khan who once said that "*The most surprising future is the one which contains no surprises*".

Future studies research will always have numerous limitations that researchers have to be aware of (Miller, 2006). Firstly, the accuracy and reliability of analysis begins to breakdown as we move further away from the present. Futurists are physically constrained to the present and cannot access the reality they are attempting to analyze. Hence, futurists must rely on present and past information to affirm their analyses of why and how various futures may occur. However, this represents another limitation of the future studies approach because this analysis is often strongly influenced by the researcher's own personal judgment and their understanding of available information. A third limitation arises from how and why certain facts and

assumptions are used to choose the most plausible outcomes from a theoretically infinite number of futures (Miller, 2006).

Considering the objectives of this research, the most appropriate future studies approach is the scenario method. Scenarios are “stories about how the future might develop” (Rialland and Wold, 2009). In Figure 8. Railland and Wold (2009) outline four different types of scenarios researchers can use. Given that this research relies heavily on qualitative data, descriptive scenarios are the most suitable way to present the analysis.

Scenarios are useful because they encourage the researcher to present a range of possible options exploring what the future could look like (Mietzner and Reger, 2005). The scenario method often restrains from attempts to specify the likelihoods of the futures under consideration (Miller, 2006). In doing so, the perceived probability of a given future, which is largely dependent on mere judgment, does not restrict the scope of analysis. Miller (2006) argues that the drawback of these probabilistic approaches is the tendency to solely focus on the “most likely” scenario. Consequently, there is less consideration given to other possible scenarios that are perceived to be” less likely”.

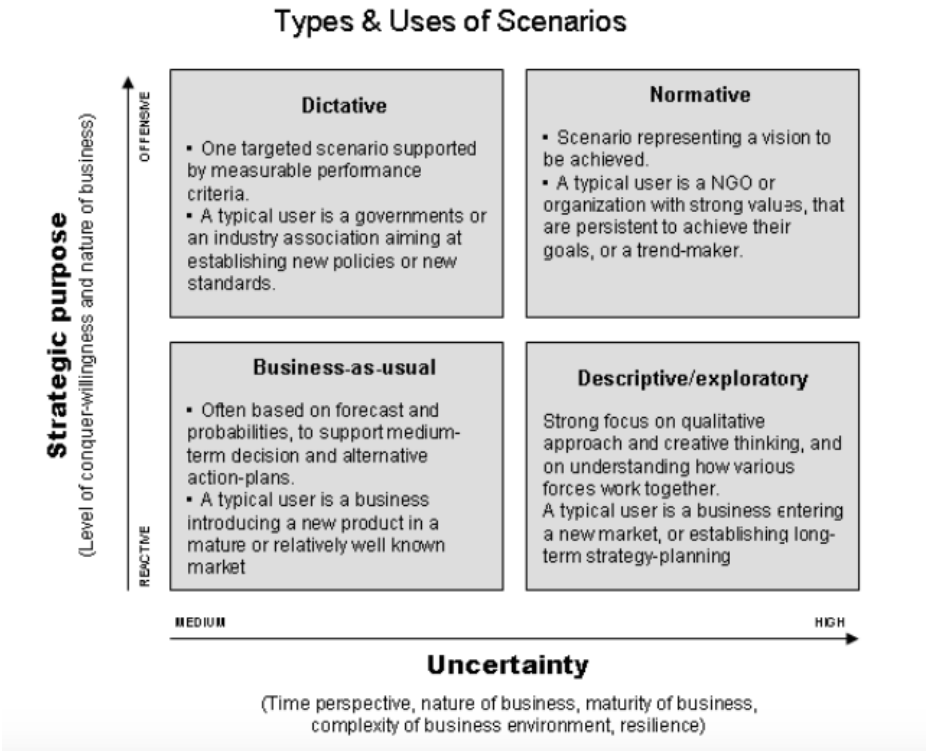

Figure 8. Types of Scenarios (Rialland and Wold, 2009)

Scenarios are subject to the same general limitations that were outlined above for the future studies approach. In addition, numerous other weaknesses of the scenario methodology have been argued by academics. One argument is that scenarios analysis is unreliable and a plethora of variables can lead to several interpretations of the data. As a result, scenario analysis is plagued with vagueness, imprecision and uncertainty (Hoffmann, 2017). Another argument detailing the weakness of scenario analysis is that the cognitive bias of the researcher and/or decision maker will cause them to immediately label certain scenarios as “optimistic” and “pessimistic” which may skew their assessment (Hoffmann, 2017). Thus, the combination of these claims can lead to the belief that scenarios are merely speculation. However, other academics defend the scenario methodology by providing counter arguments to these claims while also acknowledging the limitations of the approach such as uncertainty, unpredictability and vagueness. Distinguishing between forecasting and foresight is a counter argument to the claim that the use of the scenario methodology merely leads to speculation. According to Mietzner and Reger (2005), forecasting is “a prediction or statement of what is expected to happen in the future, especially in relation to a particular event or situation”. In order words, forecasting is conducted with the assumption that the future can be predicted given that accurate information is used. Conversely, foresight refers to “the ability to see what ones future needs are likely to be” (Mietzner and Reger, 2005) Thus, foresight that is revealed during the process of forecasting future outcomes represents equally valuable information. Hence, the implications of the scenario process go deeper than speculation or simply the proposed outcomes themselves. This is because the scenario methodology allows for the possibility to gain new insight and understanding of the impacts of decisions on future outcomes. To the same effect, Van der Heijden (2002) argues that using scenarios as a tool is advantageous due to the learning process they can provide.

There are three guiding principles for constructing effective scenarios. Firstly, the scenarios must be *plausible* meaning they “fall within the limits of what might conceivably happen” (Iverson, 2006). Secondly, they must be *relevant*, meaning they “highlight the challenges and dynamics of the future” (Iverson, 2006). Finally, they must be *divergent*, meaning they “differ from one another in significant ways”. (Iverson, 2006)

The methodology that was followed to develop the descriptive scenarios presented in this research are shown in Figure 9. By intertwining this with the research and writing process, a cohesive structure, where each phase corresponds to a section of the thesis is achieved. The scenarios were derived from both the findings of the interview process and the analysis conducted on the long-distance passenger rail market. While interviewees where not directly prompted to outline individual scenarios, questions concerning the "development of the market" (refer to Appendix 1.) indirectly gauged what the managers believed concerning the outlook of what future competition in the market could look like.

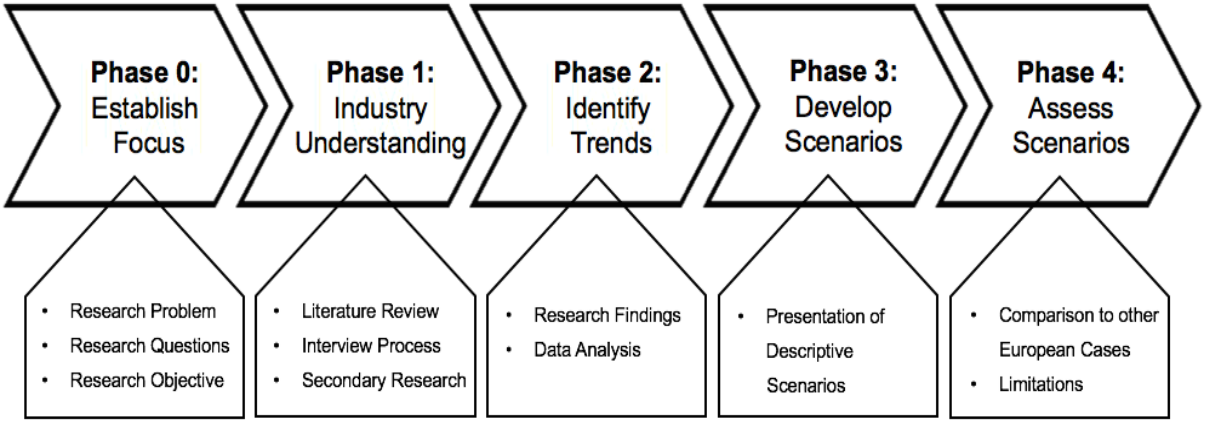

Figure 9. Descriptive Scenario Methodology (Railland and Wold, 2009)

3.2 Primary Data Collection – Interview Process

Primary data for this research was collected by interviewing high-level managers representing key organizations in the Finnish rail sector (Refer to Table 1). By interviewing experts, the research benefits from multiple viewpoints regarding the process and impact of railway deregulation in Finland while also enhancing my understanding of the central issues. In doing so, both the accuracy and reliability of the research is improved and there is less reliance on simply my own interpretation of available information.

Experts are a valuable source of information because they offer "insider" perspectives and insight which would otherwise be lacking from the analysis. Often information

asymmetry is a limitation to the research conducted by an “outsider” and contacting experts is one way to counteract this. For example, experts may reveal non-confidential information that is not publically available. Generally, the information given by experts can be considered of high quality because it is based on knowledge derived from their extensive experience and research in the field.

	Interviewee	**Organization**	**Interview Date**	**Duration (min)**
1	Manager A	Finnish Transport Infrastructure Agency (FTIA) *(Infrastructure Manager)*	29/02/2020	27
2	Manager B	Rautatiealan Unioni RAU *(Railway Union)*	05/03/2020	33
3	Manager C	Finrail Oy *(Railway Traffic Control and Planning)*	03/03/2020	9
4	Manager D	VR *(State-Owned Railway Undertaking)*	TBA	-

Table 1. Participating Managers and Interview Details

Semi-structured interviews were planned and used to guide the collection of primary data for the research. Semi-structured interviews are interviews that consist of a combination of predetermined and impromptu questions. Semi-structured interviews are useful because they give the interviewer flexibility to ask probing questions pertaining to information given by the interviewee (Adams, 2015). The interviews conducted for this research were predominantly guided by predetermined questions and relevant probing questions were asked when clarity on important issues was required. The research objectives and conceptual framework were used as a guide in structuring the interview questions around five central themes (refer to appendix for interview questions):

- Theme #1 – *Competition Model*
- Theme #2 – *Barriers to Entry*
- Theme #3 – *Ensuring a Level Playing Field and Cooperation between Stakeholders*
- Theme #4 – *Impact of Competition*

- Theme #5 – *Market Development*

In order to ensure consistency of responses, 24 base questions were presented to all interviewees (refer to Appendix 1). Majority of these questions were designed to be open-ended and encourage detailed responses however, a few questions were intended to allow for direct comparison of the answers given by the interviewees. In addition, 1-3 unique predetermined questions were presented to interviewees. The participating managers each represent prominent organizations which have different roles and responsibilities within the Finnish rail sector. Hence, it was important to also use the interview as an opportunity to understand how the actions and attitudes of these organizations may ensure a level playing field in an open access passenger rail market.

All interviews were conducted over the phone. The interviews were concise and lasted around 30 minutes each. This was sufficient time to go through all of the questions while being mindful of the interviewees busy schedules. The first two interviews were initially planned to be used as a pilot study to assess the effectiveness of the interview questions. Unfortunately, one of the interviewees refused to answer any of the questions which made assessment difficult and thus no changes to the questions were made. However, minor changes were made to the order of the questions after the first interview so that more important questions were asked towards the end of the interview. This decision was made after the realization that the responses became increasingly more in-depth as the interview progressed and the interviewee became more comfortable with the interview situation.

All interviews were recorded. The data was organized in a table where the question and response of the interviewee corresponded. This arrangement allowed the interviewees responses to be compared and contrasted effectively. Miles et al. (2013) recommend that the data collection and analysis phases should occur simultaneously. This approach acted as a guide throughout the process. Overall the interview process provided the research with intriguing insight into the rail sector and most of the interviewees were willing to share their opinions and perspectives on the impact of deregulation. However, as mentioned before one interviewee refused to answer any

of the questions, which revealed that there is hesitation within the industry to comment on the impacts of change.

3.3 Secondary Data Collection

Secondary research in the form of reports, government publications, scholarly articles, newspapers and press releases were used to compliment the findings of the interview process. Publically available reports, publications and press releases offer valuable information and research outlining both the current situation in the Finnish rail sector and recent developments in the deregulation process. Often this data is published by governmental agencies which invokes trust regarding the accuracy and reliability of the information. While the Finnish government can generally be considered trustworthy, this information must still be critically evaluated in order to identify potential bias. Newspapers are also useful sources of information given they are critically evaluated and not overly relied on. Since newspapers react to new information much faster that formal research, the information they provide is often a good starting point for further analysis.

3. FINDINGS

4.1 Competition Model

The conceptual framework recognizes that an important decision in the process of opening the passenger rail market is how competition should be introduced. The literature review provided a discussion on two frequently used competition models in Europe; competitive tendering and open access. The Finnish media has widely criticized the Ministry of Transport and Communication's decision to abandon the planning of Berner's Railway Deregulation Initiative in favor of open access as the method of introducing competition to the long-distance passenger rail market. In the most extreme cases headlines have even called the decision a "disservice to society" (Salonen, 2019). Other sources have claimed that the decision is motivated by the newly formed socialist government cabinet's desire to protect the monopoly position of the VR, the state-owned rail undertaking (Ovaskainen, 2019). The underlying reason for the widespread criticism is the general belief that competition in the market

cannot occur without there being some degree of market restructuring to remove the barrier to entry. Hence the findings of this research are surprising as they indicate that the reaction of the media is grossly overblown and that the open access model is actually a more realistic solution.

Firstly, the public cost of Berner's was a significant piece of information that had been omitted from the announcement. Moreover, according to one manager Berner's Railway Deregulation Initiative was an approach where the government was doing all of the work while the railway undertakings would simply come to a ready made table. Hence, this seemed like an extremely expensive way of introducing competition. Also, a consequence of the rolling stock leasing model would have been that railway undertakings would have effectively only competed against each other on price. Furthermore, a situation where labor costs would have been the only determinant of price due to everyone using identical rolling stock is far from an optimal situation.

> *"We calculated that the execution of Berner's Plan would have required a government investment in the region of 500 million to 1 billion euros. Given the size of the long-distance passenger rail market this made no sense*". – President of Railway Union

The loss of rolling stock synergies was also a major factor in the decision to cancel Berner's plan. Currently, VR's entire operation is based on maximizing synergy between passenger and freight rail traffic. For example, a locomotive can be used to operate a passenger service to some location in the afternoon and in the evening that same locomotive can be used to operate freight services. Inadvertently, the decision to split VR would have led to a decrease in the efficiency of the whole rail system. Thus, one advantage of open access is that it allows VR to continue synergic transport operations in the rail sector.

> *"The system in Finland is organized so that there is synergy between passenger and freight operations. Splitting VR would mean that these efficiency gains would be lost". – President of Railway Union*

Another manager was slightly less critical of Berner's Railway Deregulation Initiative stating that the establishment of a state-owned rolling stock leasing company would have accelerated the time taken for competition to occur. Conversely, in the open access model there is a set up delay between investing and starting operations. However, the manager believed there to be no difference between the choice of Berner's plan and open access on the eventual outcome of competition. This insight suggests that Berner's plan would have come at a huge cost to society without generating a greater scale of competition than open access.

> *"The advantage of Berner's Plan was that competition would have materialized quickly as new railway undertakings could immediately lease rolling stock from the leasing company. Conversely, competition will be slower to begin with the open access model. However, in the long-run I believe that the levels of competition would likely be similar in regardless of model". - Head of Railway Infrastructure, FTIA*

Instead the managers considered the open access model to be more appropriate because it encourages the formation of completion that is truly market driven and does not radically change the landscape of the market. A further advantage of the open access competition model mentioned by managers is the flexibility in the allocation of capacity and slots to railway undertakings that is not possible with rigid tendered contracts.

However, an issue of open access model is that it limits interest to only those railway undertakings that are willing to commit to a long-term presence in the market. This is because the rolling stock that is purchased essentially becomes a sunk cost since it cannot be used in any other rail system. Thus, there is a threat that rail companies deem the risk associated with the investment as being too high and competition does not occur.

4.2 Barriers to Market Entry

The nonstandard rail gauge combined with the small size of the market initially contributed to the assumption that there is a substantial barrier to entry to the Finnish rail market. This research distinguishes between these two factors and finds that the rail gauge is not a significant deterrent to the formation of competition while, the size

of the market poses some issues. However, the notion of there being an unsurmountable barrier to entry which prevents competitors from entering the rail market is false.

The implication of the open access model is that a railway undertaking wishing to enter the market must invest in new rolling stock that is compatible with the non-standard rail gauge found in Finland. Surprisingly, according to the managers, the barrier to entry to the Finnish market is, in practice, no higher than in other northern European countries such as Sweden or Norway which feature the standard rail gauge. This is because the rail network in northern Europe is relatively isolated from central Europe meaning that benefits deriving from the efficient circulation of rolling stock cannot be realized. Moreover, moving rolling stock from one market to another means that capacity is reduced in the original market. Hence, the experience thus far has been that railway undertakings tend to purchase new rolling stock for use in new markets. According to managers, this behavior largely negates the barrier of entry associated with the nonstandard rail gauge in Finland.

> *"Of course the rail gauge has some impact, but it is not impossible to overcome. We have seen that new railway undertakings have invested in new dedicated rolling stock when entering the Swedish market in recent years". - Head of Railway Infrastructure, FTIA*

The size of these companies is also an important aspect to consider. For example, rail companies such as Arriva and MTR are big customers of rolling stock manufacturers and can exercise their bargaining power to receive discounts. For these companies, the size of the investment itself is not the issue, but rather if it is worthwhile.

> *"During the tendering process of commuter passenger services in the Helsinki region, MTR (A railway undertaking from Hong Kong) was even prepared to purchase stations for its own use. Given the financial means of these large international rail companies, they will have no problem investing in their own rolling stock if they are truly interested in entering the Finnish market". – President of Railway Union*

On the other hand, the managers felt that the size of the market largely contributes to the barrier to entry. Long-distance traffic flows are overwhelmingly concentrated on roughly five routes which connect major cities (Tampere, Turku, Lahti, Seinäjoki and Oulu) to Helsinki meaning there is little market-driven demand elsewhere (refer to Appendix 2). Consequently, managers were slightly skeptical of there being space on the market for a new railway undertaking as roughly four to five daily services is currently enough to supply the demand on these major routes. However, the long-distance passenger market has witnessed explosive growth in the number of annual journeys in recent years due to the environmental trend. In response to this, one manger revealed that VR has reacted by placing orders for additional rolling stock to increase passenger capacity. Thus, increasing demand for rail services in Finland can organically allow space for a new railway undertaking in the market. Alternatively, space for a competitor could be made artificially by allocating service slots which will be discussed later.

> *"Aside from the current agreement between VR and the Ministry of Transportation and Communications, I would say the size of the market is biggest barrier to entry. 4-5 daily services are enough to supply the current level of daily demand for rail travel on major routes". – President of Railway Union*

The managers were also questioned about the presence of other potential barriers to entry such as access to maintenance, depots and labor. Consideration of these factors is relevant because in the open access model each railway undertaking is responsible for arrangement of these services. Generally, the mangers did not consider access to maintenance or depots to be an issue. For example, the Rail Transport Act dictates that all railway undertakings have equal access to shared depots and shunting yards. Moreover, there are currently vacant depots located along the main railway lines in Hyvinkää and Turku. This means a new railway undertaking would not necessarily have to invest in constructing required infrastructure for its operations. Moreover, all maintenance and repair services are centralized in the Ilmala Rail Yard in Helsinki. VR Fleetcare also currently offers maintenance and repair services to freight railway undertakings at publically disclosed prices (VR Group, 2019b). Lastly, no laws regarding labor were uncovered that would make it difficult for a reputable railway

undertaking to recruit staff. Also train drivers can be recruited from an independent school in Kouvola which offers training and certification.

4.3 Ensuring a Level Playing Field

Establishing a level playing field within the railway operating environment (refer to Appendix 3) is a crucial aspect of the deregulation process discussed in literature review and conceptual framework. This research finds that in addition to a fair legal environment, extensive measures including separating capacity and traffic management into independent organizations have been taken in the sector to ensure all railway undertakings receive equal treatment. An unexpected finding was how the open freight market has helped organizations to prepare for and gain experience with cooperating with new entrants.

The managers were confident that the Finnish railway operating environment offers a level playing field for current and future railway undertakings. The passing of the Transport Act (1302/2018) has finalized a legal environment where fair competition in the passenger rail market would already be possible without the current agreement between VR and the Ministry of Transport and Communications in place. In addition, functions related to traffic control and capacity planning have been separated from VR's operation and have been under the responsibility of independent organization Finrail since 2015. As a result of these actions, VR has gradually been stripped of its former control over the rail system.

> *"There has been competition on the freight side so we already have experience working together with VR and other railway undertakings that operate in the rail system. Thus, the change with regards to operations is not anything new". - Head of Railway Infrastructure, FTIA*

According to the managers, preparations pertaining to opening the passenger rail market have long been underway. Fundamentally the change imposed by the decision to open the passenger rail market change is not as great as one might initially expect. This is because the organizations that form the railway operating environment in Finland already have over a decade's worth of prior experience with an open freight

rail market. Surprisingly, from a rail economics perspective the operations of freight and passenger services are not too dissimilar.

> *"No rail operator is prioritized when considering pathing. Instead the specification of rolling stock that is used and the importance of the social benefit that particular train service provides is the determinant of priority". – Head of Railway Infrastructure, FTIA*

In order to ensure fairness and transparency in the allocation of railway capacity, the infrastructure manager has divided rail traffic into categories of priority. Currently, synergetic passenger transport is at the top of the hierarchy followed by fast passenger transport (Finnish Transport Infrastructure Agency, 2019a). The current system discourages the use of old and slow rolling stock since the specification of rolling stock is one of the deciding factors in determining which services get priority pathing. This is important because track capacity is scarce and use of inefficient rolling stock negatively impacts the entire rail system as discussed in the literature review.

4.4 Impact of Competition

One of the objectives of this research is to evaluate the impact of competition on relevant stakeholders. This theme is especially interesting given the academic debate concerning the overall net benefit of implementing railway deregulation throughout Europe that was explored in the literature review. This research finds that the impact of competition on the rails is perhaps not as significant as expected particularly in regards to further ticket price reductions. Also, the notion that competition will increase the market share of long-distance rail is challenged. However, general consensus was found among managers' expectations that opening the long-distance passenger rail market will enhance welfare given appropriate service level requirements are included in conjunction with allocating rail capacity.

Both managers regard the decision to open the long-distance passenger market to be positive despite the shared expectation that competition will likely not develop beyond a small scale. Thus, the direct benefits of competition will primarily be experienced by customers in major cities.

The intermodal competition between VR and coach company Onnibus.com can be used to consider the possible impacts of open access rail market competition. In many regards, describing the competition as “on the rails”, particularly on routes such as Helsinki-Tampere, would not be entirely inaccurate. Both operators would essentially depart at the same time and arrive within the same general vicinity in the city center. In addition, since highways run alongside railway lines on between major cities the travel times were comparable with price being the largest discrepancy between the two services. Interestingly, this prior competition against long-distance coach companies is the primary reason why ticket prices are not expected to significantly decrease as a consequence of competition in the rail market. This is because in response to the success of Onnibus.com’s low cost pricing strategy, VR has radically reduced the company cost structure allowing it to offer competitive prices to customers. One manager commented that even representatives from major international rail companies including Arriva, Go Ahead and MTR had been surprised by VR’s competitiveness during their visits to Finland.

> *VR has already substantially lowered ticket prices in response to the competition with Onnibus and as a result, the margin to continue lowering them is small. Thus, the impact of competition on reducing the general ticket price level on routes throughout the country will likely be small. More likely there will be situational price reductions on routes with on the rails competition”. – President of Railway Union*

Continuing to lower the price level is challenging because certain costs relating to the operation of rolling stock cannot be separated from the act of providing the service. Large price gaps are unlikely due to operating costs of railway undertakings falling in a similar range. Thus the managers did not expect price to be a major factor in competition on the rails. Another expectation held by the managers is that competition will not increase the market share of the long-distance passenger market. Instead private car will continue to be the main competitor to rail traffic particularly in between major cities where highways run alongside railway lines. As discussed earlier, demand for sustainable transport seems to be the driver of current growth in the market. Thus the notion that competition will increase the market share of the long-distance passenger market is questioned.

> *"In my opinion competition in the rail market will not increase the market share of rail. Private car will remain the number one alternative to rail travel in the foreseeable future and growth is dependent on convincing a greater number of people to use rail transport. However, the problem is how to convince people to use rail, when highways run alongside rail lines". – President of Railway Union*

Decisions regarding the allocation of railway capacity among railway undertakings have the potential to either maximize or diminish welfare gains from competition. In this instance, welfare gains refer to the overall impact that government policy may have on factors such as labor and social mobility which contribute to the well-being of people living in Finland. Hence, this is a crucial factor which must be considered when evaluating the impact of opening the market. As established in previous sections, traffic flows in the long-distance passenger market are concentrated on a handful of routes which means the right to operate these slots is valuable. There are several ways that these slots could be divided among railway undertakings and attention must be paid to the ultimate consequences of these actions. For example, one way to allocate valuable slots is to simply sell the slot to the highest bidder. However, while the sale of valuable slots can allow the government to raise substantial amounts of money, the potential negative impact on the competitiveness of the rail sector should be examined. This is because ultimately the railway undertaking will pass the cost of the slot onto its customers in the form of higher prices. Thus, expensive slots diminish the competitiveness of the rail sector because they unnecessarily increase costs. To the same effect, the infrastructure manager should also charge reasonable track access costs.

According to one manager, attaching service requirements when awarding slots is the best way to allocate capacity in a welfare enhancing way. For example, a valuable rush hour slot (for example. Helsinki-Tampere) could be awarded to the railway undertaking that then agrees to continue the service from Tampere to a secondary city such as Pori. As a result, this arrangement would incentivize railway undertakings to provide services to customers in smaller cities in exchange for the right to operate on the most profitable routes. In this way capacity allocation can be used to maximize the benefits of competition through improved service levels.

> *"I believe opening the market is a good thing as long as it is done wisely. There needs to be a clear strategy for allocating capacity and slots in such a way that service levels are improved" – President of Railway Union*

Conversely, failing to attach service requirements on valuable slots when allocating capacity would be a missed opportunity as new railway undertakings could get away with "cherry picking" the most profitable routes to operate. This can have negative consequences on rural areas particularly if competition between VR and the challenger on the most profitable routes were to become intense. In this situation, the challenger would be in an advantageous position since it is free to only operate profitable routes. VR, on the other hand mostly operates unprofitable passenger rail services around the entire country and may then cut frequencies of low traffic routes that are not included in its public service obligations.

4.5 Market Development

The final section considers the development of competition in the long-distance passenger rail market. It finds that VR is strongly positioned in the long-distance passenger market and thus it will be extremely challenging for a new railway undertaking to win significant market share. Furthermore, as discussed in earlier sections the high concentration of traffic flows on a handful of routes means that there is at best, limited space on the market for a new railway undertaking. However, the shared expectation among mangers is that a challenger will enter the market meaning some degree of competition on the rails is likely to occur.

Managers expect competition to occur in the open access long-distance passenger rail market, albeit on a small scale with VR continuing as the clear market leader. Competition on the rails between VR and the challenger is expected to occur on routes between major cities where there is enough market driven demand. However, as discussed previously managers were doubtful of the notion that there is space in the market for a competitor. This suggests that the formation of competition is at least somewhat dependent on capacity reallocation so that there are available slots to operate routes between major cities. As a result, both managers predicted that in

addition to VR, there will be one railway undertaking operating long-distance passenger rail services in Finland.

> *"My prediction is that SJ (Swedish state-owned railway company) will enter the long-distance passenger market" – President of Railway Union*

Discussions with managers revealed that representatives from Arriva, Go-Ahead, MTR, SJ have visited Finland and indicated their interest in the market. However, it is perhaps unfruitful to speculate further on the intentions of these companies as this information will only be revealed when an official announcement is given. Nevertheless, managers expect that the challenger will be a large international railway company. Interestingly, no Finnish companies were mentioned in any discussions regarding potential entrants to the market.

> *"Most likely interest to operate in the market will come from large international railway companies. The scale of competition is likely to be relatively small with VR continuing to be strong in the market. 10 years after the market is opened there will be one long-distance passenger rail operator in Finland in addition to VR". – Head of Railway Infrastructure, FTIA*

4. ANALYSIS

The primary objective of this research is to explore possible changes to the long-distance passenger market following deregulation. As detailed earlier, the scenarios are derived through a synthesis of the views of railway experts and the subsequent analysis conducted in the findings section following the scenario methodology. The following section presents three plausible, relevant and distinct scenarios that explore future outcomes that could occur in an open access long-distance passenger market. All of the scenarios feature a sole challenger entering the market.

5.1 Scenarios

5.1.1 A de Jure Monopoly becomes a Natural Monopoly

Before a decision of entry is made, railway companies will assess the attractiveness of the Finnish long-distance passenger market. This research finds the size of market

to be a barrier to entry because most demand for rail service is heavily concentrated on routes that VR can already satisfy with several daily departures. Thus, the attractiveness of the market is low unless space is created on the market for a challenger using slots and capacity reallocation.

If no changes are made to the current allocation of slots, it is difficult for a railway company to justify investing in rolling stock to operate in the market. Consequently, no challenger will enter the market leaving VR to remain as the sole provider of long-distance passenger rail service in an open market. VR then operates a natural monopoly in the long-distance passenger rail market because the size of the market creates an insurmountable barrier to which deters entry.

5.1.2 Cherry Picking and Competition on the Rails

The government is keen on competition occurring in the long-distance passenger rail market despite the size of the market posing a potential barrier to entry. Hence, it is reasonable to assume that changes to capacity allocation such as the introduction of slots will be made in order to increase the attractiveness of the long-distance passenger rail market. In addition, space for a challenger could be created organically if the strong growth in the demand for sustainable transport continues.

The challenger will naturally only be interested in serving the most profitable routes. Given traffic flows in the long-distance passenger rail market this suggests the following routes would be attractive: Helsinki – Turku, Helsinki – Kouvola, Helsinki – Tampere – Seinäjoki – Oulu (refer to Appendix 2). Consequently, competition between VR and the challenger will manifest both on the rails and for the right to operate valuable slots (Figure 10). The inclusion of service requirements associated with the right to operate these slots would mean that the routings would then continue onwards from these major cities to secondary cities. However, this will not deter the challenger from “cherry picking” individual routes to operate.

Figure 10. Routes where competition on the rails is expected

A challenger operating point to point routes loses out on the potential benefits of network synergies. However, it is possible that the lack of synergy can be offset by the challenger being able to operate rail services at lower cost. This is possible because the size of the challenger's operation is small and not weighed down by unprofitable routes as opposed to VR's national operation. The potential benefit of this is that the challenger may have a price advantage on these selected routes.

5.1.3 When Point to Point is not Enough

The final scenario entertains the notion that network synergies are desirable and consequently drive the challenger to form some kind of route network. The scenario has been divided into two versions because the outcomes, in terms of underlying

concept are not distinctive enough to be presented as stand alone scenarios. However, the two outcomes do play out completely differently.

The positon of VR in the long-distance passenger market is extremely strong and there is simply not enough market-based demand in most parts of the country. Hence, the outcome that a challenger would pursue a large route network on the rails akin to VR is not considered plausible.

5.1.3.a) Rail and Rubber

Depending on circumstances, the challenger can purchase, lease or use its own fleet of buses and rolling stock. For example, there are several companies in Finland that operate compressive route networks with large fleets of buses. The challenger would then operate rail services on major routes for example, Helsinki - Tampere and compete on the rails against VR. Then, the challenger would offer services continuing onwards from Tampere to other cities that are operated with buses. Hence, scheduling would be arranged so that passengers are connected efficiently from rail services to bus services and vice versa.

The lower operating cost of a bus means that it is possible to serve routes with lower traffic flows that are not profitable using rolling stock. Buses are also more flexible than rolling stock because they are not constrained to operate on rails. This could give the challenger a competitive advantage because it is able to connect passengers along major routes to secondary cities using its hybrid network. While most passengers prefer train as a means of travel, the experience of intermodal competition in Finland has shown that bus can quickly become a substitute for train particularly if the price is low. Thus, the challenger can combine service improvements such as direct routing and WiFi with low prices to minimize the traditional competitive disadvantages of bus travel.

5.1.3.b) Connecting regional and long-distance traffic

The outcome of the tendering of Helsinki region commuter traffic may have implications on the development of competition in the long-distance passenger rail

market if VR does not win. As established earlier, traffic within the capital region accounted for 83,8% of all passenger rail traffic in 2019. Furthermore, long-distance traffic flows are Helsinki-centric which means there is an opportunity to connect traffic from the capital region onto long-distance train services. Hence, there is an incentive for the winner of the tendering to then begin competing against VR on long-distance routes between major cities. In addition, to this service benefit, the challenger would also have a stronger claim to receive priority pathing for the Finnish Transport Infrastructure Agency. This is because synergetic passenger transport is currently at the top of the rail service pathing hierarchy.

5.2 Comparison to other European Cases

In most European countries the former state-owned monopolist has remained strongly positioned in the open passenger rail market and as a result, the market share of challengers is small in comparison (European Commission, 2020b). European Commission statistics on the market share of passenger rail in Europe indicates that challengers in Sweden have a combined 35% market share of passenger traffic relative to the incumbent, which is the third highest in Europe. In other countries of interest with respect to Finland such as Germany and Denmark the combined challenger market shares are 15,7% and 12.0% respectively (European Commission, 2020c). Britain is the notable exception in Europe with regards to the level of competition due to the franchising model since 87% of share market is held by challengers (European Commission, 2020b). Given the size and characteristics of the Finnish long-distance passenger rail market it is reasonable to expect the market share of the challenger to fall in-between the figures observed in Sweden and Denmark.

The first scenario described an outcome where competition does not occur in the long-distance passenger rail market and VR continues to operate as a monopoly. Perhaps surprisingly, the occurrence of this scenario in European passenger rail markets has been rare as often a challenger has entered the market (European Commission, 2020c).

The second scenario has occurred in Sweden where the challenger, MTR and the incumbent, SJ compete on the rails on several major routes including the Stockholm-Gothenburg route (Vigren, 2017). In addition, Sweden has allocated capacity by awarding slots to railway undertakings. Market-based slot allocation has been used by the government in Sweden as a mechanism to divide capacity among railway undertakings (Borndöfter et al. 2005). Essentially, this means that slots are being auctioned to the highest bidder. While this can generate additional revenue for the government, decision-makers in Finland should be cautious to implementing this approach because it may inadvertently decrease the competitiveness of the rail sector.

The first version of the third scenario involves the challenger developing a hybrid network of train and bus routes to compete against VR. Low cost transport companies have used similar strategies to create route networks in central Europe. For example, Flix operates FlixBus and FlixTrain services in Germany and is in the process of expanding to Sweden (Burroughs, 2020). The second version of the third scenarios has also occurred to a certain extent in Denmark where Arriva originally won the tendering for commuter services, but has since expanded the size of its operation by launching new routes (Railway Gazette, 2018).

5. CONCLUSION AND DISCUSSION

In conclusion, the objective of the research was to examine possible outcomes of competition in the long-distance passenger rail market and in doing so qualitatively consider the possible impacts of deregulation. Firstly, a comprehensive analysis of the Finnish rail market and the current deregulation process was conducted. Primary data was collected through interviews with managers of various organizations operating within the Finnish railway sector which formed the basis of the analysis while secondary data was used to gain an understanding of events in the deregulation process. The future studies approach introduced the use of the scenario methodology as a way to explore potential future outcomes in the market. The following analysis of the findings resulted in the presentation of three scenarios which outline possible outcomes of competition in the open access long-distance passenger rail market. Lastly, the domestic topic was tied to an international context through the comparison of the scenarios with market developments in comparable European countries.

The following questions were used to guide the research.

1. What is the best way to introduce competition to the Finnish long-distance passenger railway market?
2. What are the barriers to entry and does the existing rail market offer a level playing field for new entrants?
3. What is the impact of various scenarios of competition?
4. Is the proposed open access model of deregulation likely to be effective?
5. What potential shortcomings in the actions and/or proposals of decision makers can the research process reveal?

The first three questions guided the creation of the literature review and conceptual framework which identified five important themes associated with the deregulation process in Finland. The subsequent findings of the research regarding these five themes include:

- The open access model is the appropriate for introducing competition to the long-distance passenger rail market.
- The initial assumption that there is a substantial barrier to entry to the Finnish rail market posed by the non-standard rail gauge was incorrect.
- Experience with the open freight rail market has given organizations valuable experience in ensuring a level playing field for all railway undertakings.
- It is expected that an open long-distance passenger rail market will enhance welfare given appropriate service level requirements are included in conjunction with allocating rail capacity.
- The shared expectation among mangers is that a challenger will enter the market meaning some degree of competition on the rails is likely to occur.

The final two research questions address the evaluative aspect of the research. The subsequent findings suggest the open access competition model will be effective because there is less disruptions to the railway sector and existing efficiency improving synergies will be retained. Moreover, the effectiveness of the open access competition model is improved by greater flexibility in capacity allocation which allows for the inclusion of welfare enhancing service level requirements. However, the findings

caution that appropriate service level requirements should be considered when allocating capacity. If these are not implemented by decision makers, the findings indicate that potential welfare enhancing gains arising from competition in the market can be lost. With regards to refining the conceptual framework, the findings of the research support the relationships the concepts have on the formation of competition within the railway operating environment.

Finally, the research presented following three scenarios outlining how competition may play out in the market:

1. No challenger enters the market and VR will continue to operate as the sole provider of passenger rail services.
2. The challenger and VR engage in competition on the rails on select routes between major cities.
3. The challenger competes against VR using some sort of route network.
   A) The challenger operates a hybrid network of train and bus services
   B) The challenger wins the tendering of commuter services in the Helsinki region.

The following scenarios were evaluated and compared to market developments that have already occurred in numerous European railway markets. The occurrence of the second scenario (‘Cherry-picking and competition on the rails’) is most strongly supported by the evidence gathered from the interviews, the findings of the research and precedent cases in Europe.

6.1 Implications for International Business

The trend of globalization is ever-present even when evaluating relatively small and isolated markets such as the long-distance passenger rail market in Finland. Deregulation and the pursuit of opening national rail markets throughout Europe is driven by the European Commission’s vision of a single European transport market where both passenger and freight railway operations transcend national markets. Hence, the railway operating environments in the EU will continue to become

increasingly interconnected and international. This trend presents considerable opportunities for business because once closed national markets have now become accessible and relevant for international railway companies.

This research has implications for railway companies that are interested in entering the Finnish long-distance passenger rail market. Before a firm decides to enter a new market, it is crucial to analyze the market using the factors that were discussed in this research such as barriers to entry, current market conditions and trends. Using this information, the firm can then forecast its revenues and costs and appraise the investment. Moreover, the future studies and scenario methodology that was incorporated into this research are powerful tools that can be used by both managers and decision-makers to evaluate the future impacts of their strategies. Finally, the creation of scenarios allows for an improved understanding of possible future outcomes while giving managers and decision-makers a chance to identify any negative consequences and make appropriate changes that either minimize or eliminate their adverse impacts.

6.2 Reliability of the Research

The future studies approach acknowledges that the reliability and accuracy of analysis suffers due to uncertainty regarding future outcomes. Additionally, since assessment of the future can only be conducted using information that exists today, the reliability of the subsequent analysis is dependent the quality of that existing information. Consequently, measures that attempt to ensure this have been incorporated into the research methodology. For example, information from reputable peer-reviewed academic journals and press releases from government agencies and organizations within the railway operating environment have been used throughout. Given the reputation of these sources, it is reasonable to assume the information they contain is reliable.

The interview data collected during the interviews held with railway managers can also be considered to increase the reliability of the research because these individuals have extensive experience and knowledge in the railway sector. However, it must be

remembered that the information provided by experts still often represents their own personal opinions and understanding. The amalgamation of countless sources offering different perspectives on issues increases overall confidence in the reliability as it becomes easier to notice inconsistencies. For example, when information contradicts the general narrative surrounding a topic it can then be inspected more closely.

In order for a scenario to be reliable, it must be based on reliable information, exist within the realm of possibility and be constrained by justifiable assumptions. The scenario method improves reliability by avoiding unnecessary probabilistic labels such as “most likely” and “unlikely like” when describing scenarios. As a result, the research is able to provide a wider range of scenarios that amass a greater part of the possibility space of all future outcomes. Moreover, the plausibility of the scenarios is assessed through a comparison with market developments in comparable EU countries. Ultimately, these factors mean that there is increased confidence that the true future outcome of competition in the Finnish long-distance passenger rail market will fall within the vicinity of the described scenarios presented in this research.

6.3 Limitations of the Research

This research followed a future studies approach to develop scenarios of possible outcomes of competition in the open access passenger rail market. The future studies approach has three common limitations which also applies to this research. Firstly, the accuracy and reliability of the analysis is often weakened due to uncertainty regarding what will actually occur in the future. Secondly, the analysis is largely dependent on the researcher’s unique judgment of available information. Thirdly, in the process of attempting to narrow down an infinite number of future outcomes decisions to either incorporate or ignore certain facts and assumptions can inadvertently skew the analysis.

In addition to the methodology, the interview and data collection process also involved certain limitations. For example, time was a natural limitation when interviewing high ranking managers. Furthermore, some academics hold the belief that all research is always inherently limited by the existence of researcher bias that cannot completely

removed from the research process (Norris, 1997). Hence, even though the opinions and perspectives of railway managers were included in the analysis, ultimately my own judgment of their significance will have inherently played a role when assigning importance to this information. This could have been counteracted by using the Delphi technique where several questionnaire rounds are conducted in such a way that managers respond directly to the opinions of other managers and the researcher. While the interviews yielded interesting and valuable insight, information asymmetry still exists as critical information remains confidential. Lastly, this thesis used a qualitative approach and the lack of quantitative analysis is a major limitation of the research.

6.4 Suggestions for Further Research

Further quantitative analysis should be conducted to either strengthen or reject the findings of this research. Also, the findings of the research can potentially be expanded by using theoretical modeling to develop more sophisticated forecasts. In addition, a study exploring the set up costs and expected revenues of a railway undertaking entering the long-distance passenger would likely reveal interesting insight that is complimentary to this research.

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APPENDICES

Appendix 1: Interview Questions

THEME #1 – COMPETITION MODEL

What are the advantages and disadvantages of the open access model?

Do believe competition will materialize under the open access model?

What were the advantages and disadvantages of Berner's Plan?

Why did the new government cabinet cancel Berner's Plan and decide to move forward with open access?

What would be the most suitable way of introducing competition to the rail market?

THEME #2 – BARRIERS TO ENTRY

What do you consider to be the primary barriers to entry to the rail market?

Is it difficult for a new entrant to acquire rolling stock and gain access to maintenance and depots?

Is there space on the market for new entrants?

What are the challenges in the process for acquiring an operating license?

THEME #3 – ENSURING A LEVEL PLAYING FIELD AND COOPERATION BETWEEN STAKEHOLDERS

In the open access model, what services can be managed/acquired by the entrant itself and which need to be obtained from VR?

Is your organization able to make decisions that are impartial for all companies?

Will VR actively attempt to influence the opinions and decisions of organizations including Finrail, the Finnish Transport Infrastructure Agency (Väylävirasto) and the Ministry of Transport and Communications (LVM)?

Given its position as the dominant railway operator, how can VR either promote or deter competition?

Will VR offer its existing serivecs (e.g maintenance, depots, railway stations) to new entrants for reasonable prices?

What is the involvement of new rail companies in future rail infrastructure investments?

- **RAIL CAPACITY ISSUES**

What are the challenges related to traffic planning and rail capacity application? Is the process lengthy?

Other traffic limits the efficient use of rolling stock. Many track sections have high utilization rates and trains must wait for others to pass which means travel times may be slower. How can it be ensured that the rolling stock/scheduling used by new railway undertakings weaken the efficiency of the rail network?

THEME #4 – IMPACT OF COMPETITION

Do you consider the opening of the passenger rail market to be a good thing?

Will competition result in lower prices for customers?

Do you believe that competition will increase passenger numbers and increase the market sector of rail in Finland?

Which parties stand to not benefit from competition? For example, will competition raise prices in rural areas?

THEME #5 –MARKET DEVELOPMENT

Which routes or regions are most likely to attract competition?

Is there a significant chance that competition will not materialize?

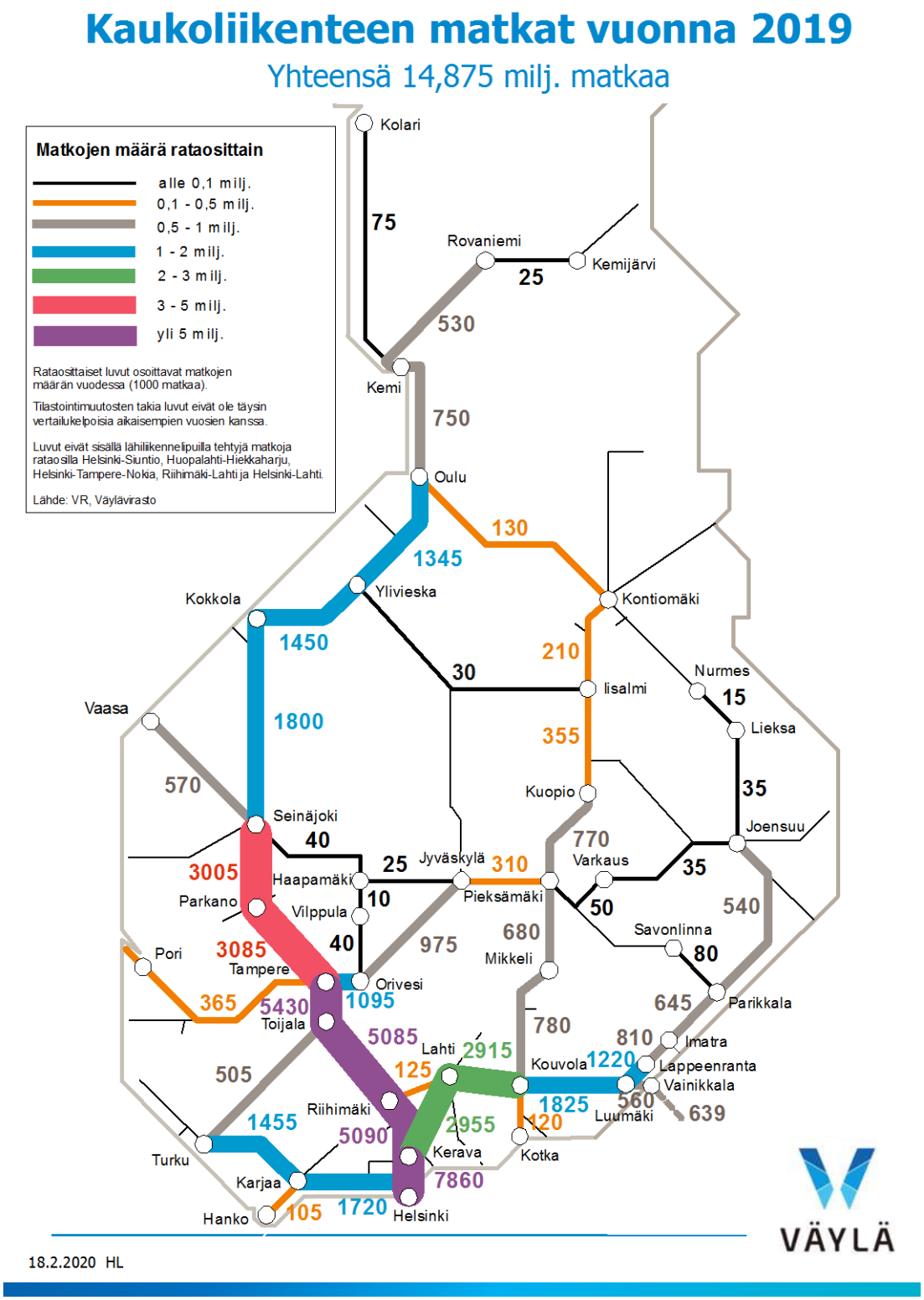
Do you expect new railway undertakings to develop route networks or will they only operate single routes?

Will the interest in operating passenger rail services in Finland come from international or domestic companies?

What companies do you think would be interested in operating rail services in Finland?

How many railway undertakings will operate long-distance passenger services after the market has been open for 10 years?

Appendix 2. Traffic Flows in Long-Distance Rail Market, 2019 (Finnish Transport Infrastructure Agency, 2019b)



Appendix 3. Overview of the Railway Operating Environment in Finland (Finnish Transport Infrastructure Agency, 2019 pg.81)